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## Gas Cylinders and Waste Legislation

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### 1-INTRODUCTION

EIGA Working Group 5 - Environment has compiled this environmental newsletter to provide updated information on environmental issues relevant to the Industrial Gases Industry.

In this newsletter we show how the EU legislation on waste has an impact on the Industrial Gases Industry. This covers the question of whether 'empty' cylinders and/or their content should be considered as waste in relation to the EU legislation and related issues such as the application of the packaging waste legislation.

'Empty' cylinders could include those returned from customers with residual gas and those prepared for filling or recycling/disposal.

Recent amendments to the European Waste list and Hazardous waste list are likely to impact the gas industry and these changes are explained in detail.

### 2-SUMMARY

- Empty cylinders are NOT to be considered as waste until they have finished their technical/economic life. Empty cylinders returned to the supplier do not contain waste but residues, and are not transported as waste.
- When cylinders with residual content of dangerous substances are designated as waste, they will be hazardous waste.
- Cylinders are included in the Packaging directive, but as fully reusable recyclable containers they fulfil the requirements and objectives of this directive.

### 3-SUMMARY OF LEGISLATION

The reduction of the volumes of waste, and in particular hazardous waste, has long been an objective of the European Union.

The first legislation was the **Waste Framework Directive 75/442/EC** (OJ L194 25.7.75) amended by **Directive 91/156** (OJ L78 dated 26.3.91), which set out a common definition of waste.

The **European Waste Catalogue (EWC) 94/3/EC** (OJ L5 7.1.94) supplements Directive 91/156 by the outlining 20 categories of waste. The objective of the EWC is to harmonise/supersede the various waste registers issued by the different member states. This list is now combined with the hazardous waste list (see below) forming one list as published in **Decision 2000/532** (OJ L47 16.2.2001).

The **Hazardous Waste Directive 91/689** (OJ L377 31.12.91) defines what is hazardous waste and is supplemented by the **Hazardous Waste List 94/904/EC** (OJ L356 31.12.94). Legislation is now developed to address specific 'priority' waste streams, including for example, **Packaging Waste 94/62** (OJ L365/10 31.12.94) and end of life vehicles.

## **4- LEGISLATION AND ITS IMPLICATIONS FOR THE GAS INDUSTRY**

### **4.1 The Framework Directive on Waste (Directive 91/156 OJ L78 26.3.91)**

#### **4.1.1 Contents of the legislation**

According to the framework directive, waste is "any substance or object in the categories set out in Annex 1 which the holder discards or is required to discard".

Annex 1 contains 16 categories, the last one being defined as "any materials, substances or products, which are not contained in the above categories". Such broad definitions of waste and of categories of waste make legislation itself open to many different interpretations. It should be noted that 'Gaseous effluents' are excluded from the definition of waste.

The Commission has admitted that, due to different interpretations in the member states, the data on waste generated in the Community do not compare and that it is impossible to make an overview.

Directive 91/156 was supplemented by the European Waste Catalogue (EWC) outlining the proposed 16 (now 20) categories of waste. The objective of the EWC is to harmonise and supersede the various waste registers issued by the different member states.

The waste catalogue will make the waste statistics from the member states comparable, but will not solve the problem of the definition of waste. To solve the problem of the definition of waste, the Commission has set up a task force of experts from member states in order to define more precise criteria to establish the distinction between product and waste.

The introduction notes, that "The EWC is an illustrative, non-exhaustive list of wastes. However the inclusion of a material in the EWC does not mean that the material is a waste in all circumstances. Only when the material satisfies the definition of waste will the entry be relevant".

The definition of waste is therefore very important and should be considered in perspective with the objectives of the waste directive, and other directives on the same subject, when we have to decide if a cylinder and/or its content should be considered as waste.

The European Waste Catalogue (EWC) contained entries into which empty cylinders and/or their content could fit, i.e.

15.01.04: "metallic packaging"

16.05.01: "industrial gases in high pressure cylinders, LPG containers and industrial aerosol containers (incl. Halons)"

The European Waste Catalogue (EWC) is now replaced by a consolidated list in 2000/532, which includes the following categories

15 01 08\* packaging containing residues of or contaminated by dangerous substances

15 01 09\* metallic packaging containing a dangerous solid porous matrix, including empty pressure containers

16 05 gases in pressure containers and discarded chemicals

16 05 04\* gases in pressure containers containing dangerous substances

16 05 05 gases in pressure containers other than those mentioned in 15 01 09 and 16 05 04

Where \* indicates a hazardous waste.

There is a proposal to further amend decision 2000/532 (COM(2001) 216 final), but this does not impact the categories above.

#### **4.1.2 Impact on EIGA members**

EIGA's view is that empty cylinders are NOT to be considered as waste until they have finished their technical/economic life. In that case, the entry 15.01.04: "metallic packaging" of the European Waste Catalogue should apply.

Empty cylinders returned to the supplier do not contain waste but residues, and are not transported as waste.

#### **Empty Cylinders as Waste**

##### **(a) The cylinder itself**

A gas cylinder is a packaging and it should be remembered that a packaging only becomes a waste when it cannot be reused anymore. Refillable cylinders (reusable packaging) only become waste at the end of their technical or economical life. The decision to declare that a refillable cylinder is no longer subject to reuse can only be taken by the owner of the receptacle or delegated by the owner to a competent person.

Non-refillable cylinders (such as aerosols and gas cartridges) become waste (hazardous or non-hazardous) after they have been used.

Thus the disposal of non-refillable receptacles that have been sold is the responsibility of the customer who bought the cylinder, which should be part of the contractual agreement for supply of the gas.

Guidelines on the safe disposal of residual products can be found in EIGA document 99/30 "Disposal of Gases" and the gas supplier can normally provide technical assistance. Once the receptacle is cleaned out it can be recycled as scrap metal.

##### **(b) The residual content of the cylinder**

The holder of a refillable cylinder does not become the holder of gaseous waste simply because his cylinder is empty but still contains some residues at a pressure too low to be used.

Residues in cylinder may be reused and the decision whether or not to reuse the gas (or whether or not to "discard" in the jargon of the directive) cannot be taken by the user of the cylinder, but by the gas producer himself.

The problem is completely different for non-refillable receptacles which, when empty, should be treated as waste, and according to the gas they still contain will become hazardous waste or not.

##### **(c) Transport of empty cylinders**

Empty cylinders (refillable or non-refillable) are described in the transport document either under the denomination of the produce or as "un-cleaned empty receptacles" containing small quantities of residues (item 8 of class 2 of the ADR/RID).

If residual gases are deliberately sent to "a waste treatment plant" for disposal, the description of the gas should include the word "waste".

The Basel Convention regulates the transfer, not the transport, of waste between the states that have ratified the convention. It aims at controlling transboundary movements of wastes and their disposal with a system of notification prior to shipment. These rules apply when waste is transferred across National or Regional borders.

As indicated above, empty cylinders are not transported as waste, except when a producer declares residues to be waste and sends them to a "waste treatment plant".

## **4.2 Hazardous Waste (Directive 91/689 L377 31.12.91)**

### **4.2.1 Contents of the legislation**

In this directive, Annexes I and II specify in great detail the processes and the substances that fall under the definition of hazardous waste. The last item of Annex I includes "any other wastes which contain any of the constituents listed in Annex II and any of the properties listed in Annex III.

Annex II lists constituents that could include many dangerous gases and their mixtures. Annex III refers to the criteria used to classify substances and preparations as dangerous.

Directive 91/689 is also supplemented with a Community list. This Hazardous waste list serves as a legally binding definition of hazardous waste, but is now incorporated into the European Waste Catalogue, by Decision 2000/532.

The original hazardous waste list has now extended the scope of what would be deemed hazardous waste. All dangerous substances, as defined in the dangerous substances directive, are now considered hazardous waste.

### **4.2.2 Impact on EIGA members**

The intent of the Hazardous Waste Directive is to ensure that waste is properly treated in facilities designed for the purpose, mixing incompatible wastes does not create additional hazards and pollution is prevented.

The Industrial Gas companies generally take full responsibility for the cylinder by retaining ownership and ensuring the return for reuse. If the cylinder is no longer suitable for use it is normal practice to remove any residual gases before sending the cylinder for recycling. Thus in the overwhelming majority of cases the cylinder when 'discarded' (sent for recovery) it is not a hazardous waste.

The recent amendments in 2000/532 have the consequence of including for example oxygen as a hazardous waste. As the thresholds in the dangerous substances legislation are being applied, at least the categorisation of air (21% oxygen) as a hazardous waste is avoided, however it does mean that a mixture of 24% oxygen would be hazardous waste.

However it is important to note that cylinders returned from customers are not waste (see 3.1.2 a) and b) above) and that disposing of gaseous effluents does not require a waste treatment licence, thus cylinder filling depots are not hazardous waste disposal facilities.

EIGA lobbied for changes in the hazardous waste list and produced a briefing note/position paper, which was sent to the National Authorities and to the Commission. The decisions on additions/changes to the waste list are taken by a technical committee of member states experts from the national authorities.

## **4.3 Packaging Waste (94/62 L365/10 31.12.94)**

### **4.3.1 Contents of the legislation**

The aims of this directive are to encourage efficient and economic design of packaging and promoting the reuse, recycling and recovery of such packaging.

### **4.3.2 Impact on EIGA members**

The Directive covers ALL packaging including cylinders and the requirement to reuse, recycle and recover the packaging.

All new packaging 'put on the market' after 1<sup>st</sup> Jan 1998 must meet certain 'essential requirements' on reusability / recyclability. For packages meeting CEN or recognised national standards these requirements are deemed to be met.

The gas cylinder is a fully reusable package with an economic life well in excess of 20 years, which is fully recyclable at the end of its life. Cylinders must comply fully with the relevant National and CEN standards for safety reasons. Industrial Gas companies generally take full responsibility for the cylinder by retaining ownership and ensuring the return for reuse. If the cylinder is no longer suitable for use it is normal practice to

remove any residual gases before sending the cylinder for recycling and recovery. The cylinder only enters the waste stream (for recovery) if it fails its periodic 'revalidation' test.

It is thus only in exceptional circumstances that gas cylinders are landfilled, representing less than 1% of those cylinders removed from the commercial cycle due to the cylinder failing its periodic validation test. New cylinders therefore are not to replace those going to landfill sites, but represent growth in the gases business. In any case with a 20 plus year life span before recovery new cylinders are not representative of the cylinders sent now for recovery.

Acetylene cylinders represent a special case. In the past small quantities of asbestos were used in the mass and a higher proportion of these are landfilled. The principals of the waste management of these cylinders are covered in EIGA document 05/00.

In most cases the gas cylinder remains the property of the gas company, and is rented to the customer, thus not 'sold'. Thus by providing a fully reusable, recyclable package and full producer responsibility for it, the Industrial Gas Industry already exceeds the targets in the Directive.

Directive 96/191 established a VOLUNTARY scheme of labelling to indicate reusability, recyclability etc. EIGA recommends that further labels on cylinders are not necessary, as they would only serve to confuse the end user.

## **Feedback**

EIGA WG-5 members welcome feedback on this and other publications.

If you need any more information or would like to make any comments please contact your WG-5 representative, the WG5 Chairman or the EIGA office.

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